Direct Imaging Search for Young Massive Planets

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Everyone would like to see an image of an extrasolar planet. So far, the radial velocity detection method has only detected giant planets indirectly by measuring the wobble of the planet's parent star toward or away from us. Direct imaging of extrasolar planets, then, is highly desirable because one could separate the light from the star and the planet. However, such imaging is difficult. The most important difficulty is the dynamic range of stars. Our project is direct imaging detection of sub-stellar companions around young nearby stars, within 100 pc, up to 100 Myrs old. By deep IR imaging with AO (e.g., VLT-NaCo), we can detect brown dwarfs with separations down to 20 AU around the young stars. Direct imaging detection of a massive planet will probably work first around a young star.